

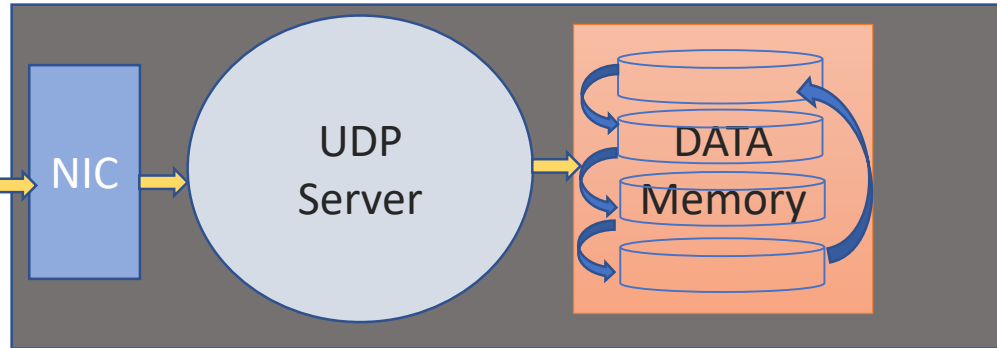
Bilan des tests pour la carte Idrogen

21/02/2022

Acquisition UDP de la carte Idrogen

Server DELL C6420: 2 Processeur 12 cœurs Ram 96GBytes

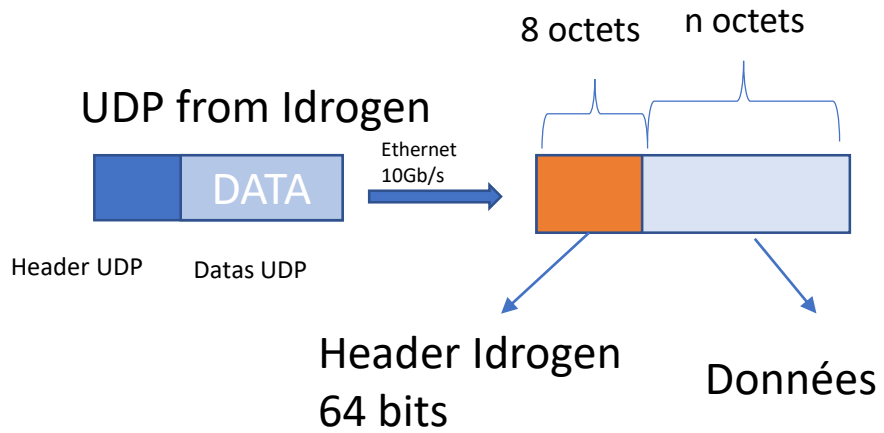
Idrogen



UDP

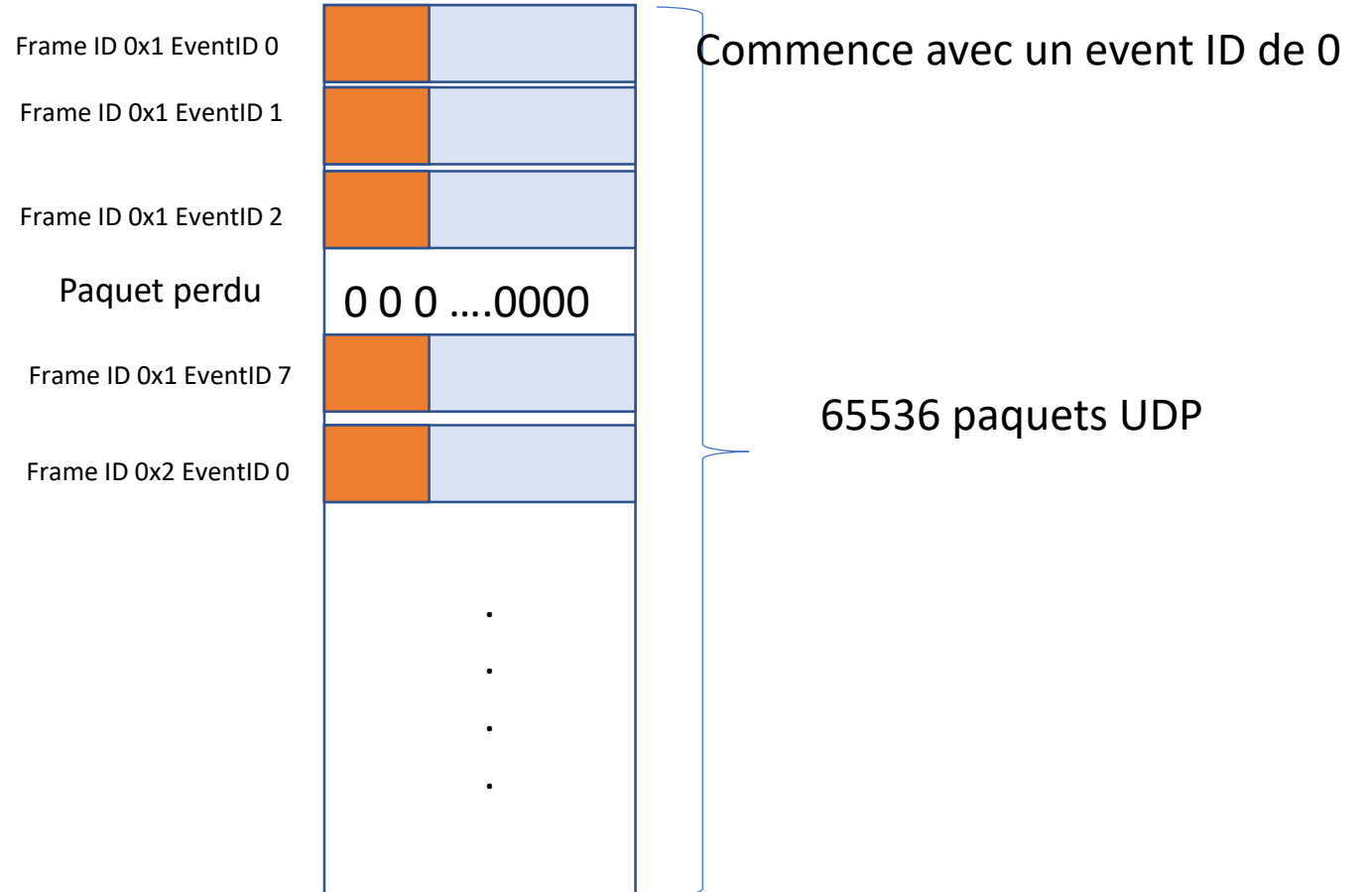
Transfert
rate: 1 à 10
Gb/s

Ce que deviennent les paquets UDP



Un event est constitué de plusieurs paquets UDP de 1024 octets

Exemple avec un event de :
8192 octets => 8x1024



Premiers tests

Utilisation de la carte Idrogen en direct sur le serveur C6400-01 avec une carte réseau broadcom:
Broadcom Limited BCM57412 NetXtreme-E 10Gb RDMA Ethernet Controller (lspci)

En jumbo frame de 9000 débit de 1226Mo/s pas de perte de paquets !

```
==== Acquisition from Software Client =====
new socket 192.168.1.10 50001 Listening for packets at udp://192.168.1.10:50001
type q to quit the program!
Acquisition in standalone , checking consistency of paquets
Ready, waiting datas
2022-01-19 17:47:06
found first event size :8 FirstFrame dbd37e73 prevCounter dbd37e72
started with frame ID dbd37e73 with FirstFrame dbd37e73
Receive 20000000 Paquets for total size 90000000000 rate 1226.01Mo/s Lost 0 corrupted 0
Receive 7330000000 Paquets for total size 90000000000 rate 1226.01Mo/s Lost 0 corrupted 0
Receive 7340000000 Paquets for total size 90000000000 rate 1226.01Mo/s Lost 0 corrupted 0
```

Tests suivant ...

Machine Bao9 reconfigurée avec l'OS Debian 11 et une carte réseau
Ethernet controller: Intel Corporation Ethernet Controller XXV710 for 25GbE SFP28 (rev 02) (Ispci)
Et l'on passe par le switch FS5860

```
bao@bao9:~/NewStare/Stare_Queue_Manager$ ./Server 10.10.1.2 5001 1032 51200 1 3 1
===== Acquisition from Software Client =====
new socket 10.10.1.2 5001 Listening for packets at udp://10.10.1.2:5001
Type q to quit the program!
Acquisition in standalone , checking consistency of paquets
Ready, waiting datas
Found frame size of 1032 octets
wait stabilized rate
2022-02-07 19:08:03
Search info event size in the first event frames
FirstFrame 3a85f58b prevCounter 3a85f58a
started with frame ID 3a85f58b with FirstFrame 3a85f58b
Receive 30000000 Paquets for total size 10320000000 rate 742.988Mo/s Lost 1117 corrupted 0

Receive 36960000000 Paquets for total size 10320000000 rate 742.993Mo/s Lost 328628 corrupted 0
Receive 37600000000 Paquets for total size 10320000000 rate 742.994Mo/s Lost 328628 corrupted 0
```

9 x10^{e-6} de taux de perte

Si l'on augmente le débit c'est de pire en pire.
D'où vient le problème ??
Avec H.G. on a vu que le port PCIE limite le débit ,
j'ai changé la carte de slot car : =>

Votre système prend en charge les éléments suivants :

- Les cartes PCI Express de 2ème et 3ème génération.
- Différentes cartes de montage pour cartes d'extension adaptées à des configurations à un ou deux processeurs. Le tableau suivant présente les configurations des cartes de montage pour des systèmes à un ou deux processeurs :

Tableau 3. Configuration de carte de montage pour systèmes à un ou deux processeurs

Nombre de processeurs	Logements de carte d'extension	
	Carte de montage 1	Carte de montage 2
Un	PCIE_G2_X4	PCIE_G3_X8
	Carte de ports iDRAC	PCIE_G3_X4
		PCIE_G3_X4
.....

Mais toujours pareil

```
Terminal - bao@bao9: ~/Stare_Queue_Manager
Fichier Édition Affichage Terminal Onglets Aide
bao@bao9:~/Stare_Queue_Manager$ iperf3 -c 10.10.1.5 -B 10.10.1.2 -u -b 6G
Connecting to host 10.10.1.5, port 5201
[ 5] local 10.10.1.2 port 56949 connected to 10.10.1.5 port 5201
[ ID] Interval      Transfer    Bitrate    Total Datagrams
[ 5] 0.00-1.00    sec 262 MBytes 2.19 Gbits/sec 189387
[ 5] 1.00-2.00    sec 266 MBytes 2.24 Gbits/sec 192957
[ 5] 2.00-3.00    sec 267 MBytes 2.24 Gbits/sec 193088
[ 5] 3.00-4.00    sec 267 MBytes 2.24 Gbits/sec 193002
[ 5] 4.00-5.00    sec 266 MBytes 2.23 Gbits/sec 192832
[ 5] 5.00-6.00    sec 270 MBytes 2.27 Gbits/sec 195538
[ 5] 6.00-7.00    sec 270 MBytes 2.26 Gbits/sec 195466
[ 5] 7.00-8.00    sec 270 MBytes 2.27 Gbits/sec 195714
[ 5] 8.00-9.00    sec 270 MBytes 2.26 Gbits/sec 195396
[ 5] 9.00-10.00   sec 270 MBytes 2.27 Gbits/sec 195622
-----
[ ID] Interval      Transfer    Bitrate    Jitter    Lost/Total Datagrams
[ 5] 0.00-10.00   sec 2.61 GBytes 2.25 Gbits/sec 0.000 ms 0/1939002 (0%) sender
[ 5] 0.00-10.00   sec 2.61 GBytes 2.25 Gbits/sec 0.006 ms 0/1939002 (0%) receiver
iperf Done.
bao@bao9:~/Stare_Queue_Manager$
```

```
Terminal - taurigna@c6400-04: ~/Stare_Queue_Manager/Scripts
Fichier Édition Affichage Terminal Onglets Aide
[ 5] 0.00-10.00 sec 2.45 GBytes 2.10 Gbits/sec 0.005 ms 0/1814241 (0%) receiver
-----
Server listening on 5201
Accepted connection from 10.10.1.2, port 36567
[ 5] local 10.10.1.5 port 5201 connected to 10.10.1.2 port 56949
[ ID] Interval      Transfer    Bitrate    Jitter    Lost/Total Datagrams
[ 5] 0.00-1.00    sec 262 MBytes 2.19 Gbits/sec 0.006 ms 0/189381 (0%)
[ 5] 1.00-2.00    sec 266 MBytes 2.24 Gbits/sec 0.005 ms 0/192950 (0%)
[ 5] 2.00-3.00    sec 267 MBytes 2.24 Gbits/sec 0.006 ms 0/193092 (0%)
[ 5] 3.00-4.00    sec 267 MBytes 2.24 Gbits/sec 0.005 ms 0/192998 (0%)
[ 5] 4.00-5.00    sec 266 MBytes 2.23 Gbits/sec 0.005 ms 0/192833 (0%)
[ 5] 5.00-6.00    sec 270 MBytes 2.27 Gbits/sec 0.005 ms 0/195538 (0%)
[ 5] 6.00-7.00    sec 270 MBytes 2.26 Gbits/sec 0.005 ms 0/195459 (0%)
[ 5] 7.00-8.00    sec 270 MBytes 2.27 Gbits/sec 0.005 ms 0/195716 (0%)
[ 5] 8.00-9.00    sec 270 MBytes 2.26 Gbits/sec 0.005 ms 0/195390 (0%)
[ 5] 9.00-10.00   sec 270 MBytes 2.27 Gbits/sec 0.005 ms 0/195626 (0%)
[ 5] 10.00-10.00  sec 26.9 KBytes 1.17 Gbits/sec 0.006 ms 0/19 (0%)
-----
[ ID] Interval      Transfer    Bitrate    Jitter    Lost/Total Datagrams
[ 5] 0.00-10.00   sec 2.61 GBytes 2.25 Gbits/sec 0.006 ms 0/1939002 (0%) receiver
-----
Server listening on 5201
```

Test avec C6400

On a mis la carte 25G dans le serveur C6400 , j'espère que cela va aller mieux
Test en TCP même débit que sur bao9...

```
Terminal - taurigna@c6400-02: ~
Fichier Édition Affichage Terminal Onglets Aide
taurigna@c6400-02:~$ iperf -s
-bash: iperf: command not found
taurigna@c6400-02:~$ iperf3 -s
-----
Server listening on 5201
-----
Accepted connection from 10.10.1.8, port 33215
[ 5] local 10.10.1.3 port 5201 connected to 10.10.1.8 port 40421
[ ID] Interval      Transfer       Bitrate
[ 5]  0.00-1.00  sec  1.04 GBytes  8.90 Gbits/sec
[ 5]  1.00-2.00  sec  1.09 GBytes  9.39 Gbits/sec
[ 5]  2.00-3.00  sec  1.09 GBytes  9.39 Gbits/sec
[ 5]  3.00-4.00  sec  1.09 GBytes  9.38 Gbits/sec
[ 5]  4.00-5.00  sec  1.09 GBytes  9.39 Gbits/sec
[ 5]  5.00-6.00  sec  1.09 GBytes  9.40 Gbits/sec
[ 5]  6.00-7.00  sec  1.09 GBytes  9.40 Gbits/sec
[ 5]  7.00-8.00  sec  1.10 GBytes  9.41 Gbits/sec
[ 5]  8.00-9.00  sec  1.10 GBytes  9.41 Gbits/sec
[ 5]  9.00-10.00 sec  1.09 GBytes  9.40 Gbits/sec
[ 5] 10.00-10.03 sec  37.6 MBytes  9.41 Gbits/sec
-----
[ ID] Interval      Transfer       Bitrate
[ 5]  0.00-10.03  sec  10.9 GBytes  9.35 Gbits/sec
-----
Server listening on 5201
-----
logout
(failed reverse-i-search)`iperf': ^Cerf3 -s
taurigna@c6400-07:~$ iperf3 -c 10.10.1.2 -B 10.10.1.8 -b10G
iperf3: error - unable to connect to server: No route to host
taurigna@c6400-07:~$ iperf3 -c 10.10.1.3 -B 10.10.1.8 -b10G
Connecting to host 10.10.1.3, port 5201
[ 5] local 10.10.1.8 port 40421 connected to 10.10.1.3 port 5201
[ ID] Interval      Transfer       Bitrate      Retr  Cwnd
[ 5]  0.00-1.00  sec  1.08 GBytes  9.26 Gbits/sec  113  888 KBytes
[ 5]  1.00-2.00  sec  1.09 GBytes  9.39 Gbits/sec   0  888 KBytes
[ 5]  2.00-3.00  sec  1.09 GBytes  9.39 Gbits/sec   0  889 KBytes
[ 5]  3.00-4.00  sec  1.09 GBytes  9.38 Gbits/sec   0  889 KBytes
[ 5]  4.00-5.00  sec  1.09 GBytes  9.39 Gbits/sec   0  889 KBytes
[ 5]  5.00-6.00  sec  1.09 GBytes  9.40 Gbits/sec   0  889 KBytes
[ 5]  6.00-7.00  sec  1.09 GBytes  9.39 Gbits/sec   0  889 KBytes
[ 5]  7.00-8.00  sec  1.10 GBytes  9.41 Gbits/sec   0  891 KBytes
[ 5]  8.00-9.00  sec  1.09 GBytes  9.40 Gbits/sec   0  892 KBytes
[ 5]  9.00-10.00 sec  1.09 GBytes  9.40 Gbits/sec   0  892 KBytes
-----
[ ID] Interval      Transfer       Bitrate      Retr
[ 5]  0.00-10.00  sec  10.9 GBytes  9.38 Gbits/sec  113
[ 5]  0.00-10.03  sec  10.9 GBytes  9.35 Gbits/sec
-----
sender
receiver
```

```
Terminal - taurigna@c6400-02: ~
Fichier Édition Affichage Terminal Onglets Aide
Server listening on 5201
-----
q*[3-
^Ciperf3: interrupt - the server has terminated
taurigna@c6400-02:~$ iperf -s
-bash: iperf: command not found
taurigna@c6400-02:~$ iperf3 -c 10.10.1.8 -B 10.10.1.3 -b10G
Connecting to host 10.10.1.8, port 5201
[ 5] local 10.10.1.3 port 45079 connected to 10.10.1.8 port 5201
[ ID] Interval      Transfer       Bitrate      Retr  Cwnd
[ 5]  0.00-1.00  sec  956 MBytes  8.02 Gbits/sec   0  1.43 MBytes
[ 5]  1.00-2.00  sec  918 MBytes  7.70 Gbits/sec   0  1.43 MBytes
[ 5]  2.00-3.00  sec  919 MBytes  7.71 Gbits/sec   0  1.43 MBytes
[ 5]  3.00-4.00  sec  899 MBytes  7.54 Gbits/sec  23  1024 KBytes
[ 5]  4.00-5.00  sec  908 MBytes  7.62 Gbits/sec   0  1024 KBytes
[ 5]  5.00-6.00  sec  908 MBytes  7.61 Gbits/sec   3   716 KBytes
[ 5]  6.00-7.00  sec  1003 MBytes  8.41 Gbits/sec   0   759 KBytes
[ 5]  7.00-8.00  sec  1021 MBytes  8.57 Gbits/sec   0   814 KBytes
[ 5]  8.00-9.00  sec  1.00 GBytes  8.61 Gbits/sec   0   841 KBytes
[ 5]  9.00-10.00 sec  1.00 GBytes  8.62 Gbits/sec   0   861 KBytes
-----
[ ID] Interval      Transfer       Bitrate      Retr
[ 5]  0.00-10.00  sec  9.36 GBytes  8.04 Gbits/sec  26
[ 5]  0.00-10.04  sec  9.36 GBytes  8.00 Gbits/sec
-----
iperf Done.
taurigna@c6400-02:~$
taurigna@c6400-07:~$ iperf3 -s
-----
Server listening on 5201
-----
Accepted connection from 10.10.1.3, port 41659
[ 5] local 10.10.1.8 port 5201 connected to 10.10.1.3 port 45079
[ ID] Interval      Transfer       Bitrate      Retr  Cwnd
[ 5]  0.00-1.00  sec  914 MBytes  7.67 Gbits/sec
[ 5]  1.00-2.00  sec  917 MBytes  7.69 Gbits/sec
[ 5]  2.00-3.00  sec  919 MBytes  7.71 Gbits/sec
[ 5]  3.00-4.00  sec  900 MBytes  7.55 Gbits/sec
[ 5]  4.00-5.00  sec  907 MBytes  7.61 Gbits/sec
[ 5]  5.00-6.00  sec  908 MBytes  7.62 Gbits/sec
[ 5]  6.00-7.00  sec  997 MBytes  8.37 Gbits/sec
[ 5]  7.00-8.00  sec  1020 MBytes  8.55 Gbits/sec
[ 5]  8.00-9.00  sec  1.00 GBytes  8.61 Gbits/sec
[ 5]  9.00-10.00 sec  1.00 GBytes  8.62 Gbits/sec
[ 5] 10.00-10.04 sec  44.5 MBytes  8.49 Gbits/sec
-----
[ ID] Interval      Transfer       Bitrate
[ 5]  0.00-10.04  sec  9.36 GBytes  8.00 Gbits/sec
-----
receiver
Server listening on 5201
```



Carte 25G sur
la
C6400-07

Et en UDP !! Pareil voir pire suivant les tests

```
Terminal - taurigna@c6400-02: ~
Fichier Édition Affichage Terminal Onglets Aide

ID] Interval      Transfer      Bitrate
5] 0.00-10.03 sec 10.9 GBytes 9.35 Gbits/sec receiver
-----
server listening on 5201
-----
Accepted connection from 10.10.1.8, port 38913
5] local 10.10.1.3 port 5201 connected to 10.10.1.8 port 38169
ID] Interval      Transfer      Bitrate      Jitter      Lost/Total Datagrams
5] 0.00-1.00 sec 226 MBytes 1.89 Gbits/sec 0.006 ms 0/163543 (0%)
5] 1.00-2.00 sec 236 MBytes 1.98 Gbits/sec 0.006 ms 0/170689 (0%)
5] 2.00-3.00 sec 236 MBytes 1.98 Gbits/sec 0.005 ms 0/170689 (0%)
5] 3.00-4.00 sec 236 MBytes 1.98 Gbits/sec 0.006 ms 0/170792 (0%)
5] 4.00-5.00 sec 236 MBytes 1.98 Gbits/sec 0.006 ms 0/170749 (0%)
5] 5.00-6.00 sec 240 MBytes 2.01 Gbits/sec 0.006 ms 0/173577 (0%)
5] 6.00-7.00 sec 240 MBytes 2.01 Gbits/sec 0.006 ms 0/173755 (0%)
5] 7.00-8.00 sec 240 MBytes 2.01 Gbits/sec 0.006 ms 0/173885 (0%)
5] 8.00-9.00 sec 240 MBytes 2.01 Gbits/sec 0.006 ms 0/173880 (0%)
5] 9.00-10.00 sec 240 MBytes 2.01 Gbits/sec 0.007 ms 0/173795 (0%)
5] 10.00-10.04 sec 9.01 MBytes 2.00 Gbits/sec 0.006 ms 0/6525 (0%)
-----
ID] Interval      Transfer      Bitrate      Jitter      Lost/Total Datagrams
5] 0.00-10.04 sec 2.32 GBytes 1.99 Gbits/sec 0.006 ms 0/1722046 (0%) receiver
-----
server listening on 5201
-----
[5]
5] 0.00-10.00 sec 10.9 GBytes 9.38 Gbits/sec 113 sender
5] 0.00-10.03 sec 10.9 GBytes 9.35 Gbits/sec receiver
-----
perf Done.
taurigna@c6400-07:~$ iperf3 -c 10.10.1.3 -B 10.10.1.8 -b10G -u
connecting to host 10.10.1.3, port 5201
5] local 10.10.1.8 port 38169 connected to 10.10.1.3 port 5201
ID] Interval      Transfer      Bitrate      Total Datagrams
5] 0.00-1.00 sec 236 MBytes 1.98 Gbits/sec 170761
5] 1.00-2.00 sec 236 MBytes 1.98 Gbits/sec 170740
5] 2.00-3.00 sec 236 MBytes 1.98 Gbits/sec 170624
5] 3.00-4.00 sec 236 MBytes 1.98 Gbits/sec 170699
5] 4.00-5.00 sec 236 MBytes 1.98 Gbits/sec 170658
5] 5.00-6.00 sec 240 MBytes 2.01 Gbits/sec 173607
5] 6.00-7.00 sec 240 MBytes 2.01 Gbits/sec 173685
5] 7.00-8.00 sec 240 MBytes 2.01 Gbits/sec 173794
5] 8.00-9.00 sec 240 MBytes 2.01 Gbits/sec 173796
5] 9.00-10.00 sec 240 MBytes 2.01 Gbits/sec 173682
-----
ID] Interval      Transfer      Bitrate      Jitter      Lost/Total Datagrams
5] 0.00-10.00 sec 2.32 GBytes 1.99 Gbits/sec 0.000 ms 0/1722046 (0%) sender
5] 0.00-10.04 sec 2.32 GBytes 1.99 Gbits/sec 0.006 ms 0/1722046 (0%) receiver
-----
perf Done.
taurigna@c6400-07:~$
```



```
perf Done.
taurigna@c6400-02:~$ iperf3 -c 10.10.1.8 -B 10.10.1.3 -b10G -u
connecting to host 10.10.1.8, port 5201
5] local 10.10.1.3 port 49981 connected to 10.10.1.8 port 5201
ID] Interval      Transfer      Bitrate      Retr      Total Datagrams
5] 0.00-1.00 sec 569 MBytes 4.78 Gbits/sec 26 412349
5] 1.00-2.00 sec 583 MBytes 4.89 Gbits/sec 26 422177
5] 2.00-3.00 sec 586 MBytes 4.92 Gbits/sec 26 424560
5] 3.00-4.00 sec 586 MBytes 4.91 Gbits/sec 26 424084
5] 4.00-5.00 sec 585 MBytes 4.91 Gbits/sec 26 423958
5] 5.00-6.00 sec 591 MBytes 4.96 Gbits/sec 26 428218
5] 6.00-7.00 sec 590 MBytes 4.95 Gbits/sec 26 427353
5] 7.00-8.00 sec 590 MBytes 4.95 Gbits/sec 26 427148
5] 8.00-9.00 sec 593 MBytes 4.98 Gbits/sec 26 429531
5] 9.00-10.00 sec 591 MBytes 4.96 Gbits/sec 26 428310
-----
ID] Interval      Transfer      Bitrate      Jitter      Lost/Total Datagrams
5] 0.00-10.00 sec 5.73 GBytes 4.92 Gbits/sec 0.000 ms 0/4247688 (0%) sender
5] 0.00-10.05 sec 2.43 GBytes 2.08 Gbits/sec 0.004 ms 2442522/4247533 (58%) receiver
-----
perf Done.
taurigna@c6400-02:~$
5]
5] 0.00-10.04 sec 9.36 GBytes 8.00 Gbits/sec receiver
-----
server listening on 5201
-----
Accepted connection from 10.10.1.3, port 52157
5] local 10.10.1.8 port 5201 connected to 10.10.1.3 port 49981
ID] Interval      Transfer      Bitrate      Jitter      Lost/Total Datagrams
5] 0.00-1.00 sec 241 MBytes 2.02 Gbits/sec 0.005 ms 219534/394315 (56%)
5] 1.00-2.00 sec 251 MBytes 2.10 Gbits/sec 0.003 ms 240610/422178 (57%)
5] 2.00-3.00 sec 248 MBytes 2.08 Gbits/sec 0.005 ms 244394/423786 (58%)
5] 3.00-4.00 sec 248 MBytes 2.08 Gbits/sec 0.005 ms 244576/424336 (58%)
5] 4.00-5.00 sec 250 MBytes 2.09 Gbits/sec 0.008 ms 243101/423831 (57%)
5] 5.00-6.00 sec 247 MBytes 2.07 Gbits/sec 0.005 ms 248982/427632 (58%)
5] 6.00-7.00 sec 249 MBytes 2.09 Gbits/sec 0.005 ms 246742/427030 (58%)
5] 7.00-8.00 sec 249 MBytes 2.09 Gbits/sec 0.006 ms 246847/427132 (58%)
5] 8.00-9.00 sec 253 MBytes 2.12 Gbits/sec 0.007 ms 246073/429324 (57%)
5] 9.00-10.00 sec 245 MBytes 2.06 Gbits/sec 0.006 ms 250256/428007 (58%)
5] 10.00-10.05 sec 11.8 MBytes 2.13 Gbits/sec 0.004 ms 11407/19962 (57%)
-----
ID] Interval      Transfer      Bitrate      Jitter      Lost/Total Datagrams
5] 0.00-10.05 sec 2.43 GBytes 2.08 Gbits/sec 0.004 ms 2442522/4247533 (58%) receiver
-----
server listening on 5201
-----
```



Piste à explorer:
la config du switch